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PETROLOGICAL ABSTRACTS AND REVIEWS

ALBERT JOHANNSEN

WASHINGTON, HENRY S. "Some Lavas of Monte Arci, Sardinia," *Amer. Jour. Sci.*, XXXVI (1913), 577–90, analyses.

The extinct volcano Monte Arci has not been described since 1857. It consists of a core of rhyolite with later dacites, andesites, trachytes, and basalts. The various lavas are described petrographically and chemically. Seven analyses are given and they are recomputed in the C.I.P.W. system.

WASHINGTON, HENRY S. "The Composition of Rockallite," *Quart. Jour. Geol. Soc.*, LXX (1914), 294–302.

This paper describes a peculiar aegirite-granite from Rockall. A chemical analysis gives SiO_2 69.80, while a previous and probably accurate analysis of the other half of the same specimen gave 73.60. This shows the great variation possible in a single small specimen.

WASHINGTON, HENRY S. "An Occurrence of Pyroxenite and Hornblendite in Bahia, Brazil," *Amer. Jour. Sci.*, XXXVIII (1914), 79–90, analyses.

Describes a hornblendite with a border of pyroxenite intruded in gneiss. The rocks contain considerable manganese. They are interesting since they possess absolutely no feldspar and yet show from 18 to 30 per cent in the norms.

WASHINGTON, HENRY S. "I Basalti Analcitici della Sardegna," *Boll. Soc. Geol. Ital.*, XXXIII (1914), 147–67.

A translation of "The analcite basalts of Sardinia" which appeared in this Journal, Vol. XXII (1914), 742–53.

WASHINGTON, HENRY S. "Contributions to Sardinian Petrography. I. The Rocks of Monte Ferru," *Amer. Jour. Sci.*, XXXIX (1915), 513-29, figs. 2, analyses.

In this paper are described trachyte, trachytic phonolite, basalt, and analcite-basalt from Monte Ferru, Sardinia.

WASHINGTON, HENRY S. "The Calculation of Calcium Orthosilicate in the Norm of Igneous Rocks," *Jour. Wash. Acad. Sci.*, V (1915), 345-50.

Calcium silicate, which was originally calculated in the C.I.P.W. system as $4CaO.3SiO_2$, was later (1912) revised as $3CaO.2SiO_2$. This is again revised and now the orthosilicate $2CaO.SiO_2$ is used in calculating the norm. A table is given which may be cut out and pasted over the akermanite table given in the C.I.P.W. book.

WASHINGTON, HENRY S. "The Correlation of Potassium and Magnesium, Sodium and Iron in Igneous Rocks," *Proc. Nat. Acad. Sci.*, I (1915), 574-78.

The writer shows that in igneous magmas potassium and magnesium on the one hand and sodium and iron on the other probably vary together.

WASHINGTON, H. S., and DAY, ARTHUR L. "Present Condition of the Volcanoes of Southern Italy," *Bull. Geol. Soc. Amer.*, XXVI (1915), 375-88, pls. 9.

A record of the state of activity and other conditions at Vesuvius, Ætna, and the Æolian Islands during the summer of 1914. The general results of the observations and studies of gases, salts, and rocks collected will be given in a subsequent paper.

WATSON, THOMAS L., and TABER, STEPHEN. "Magmatic Names Proposed in the Quantitative System of Classification for Some New Rock Types in Virginia," *Bull. Phil. Soc. Univ. of Virginia Scientif. Ser.*, I (1913), 331-33.

Proposes four new names in the C.I.P.W. system, for rocks found in Virginia.

WATSON, THOMAS L., and CLINE, JUSTUS H. "Petrology of a Series of Igneous Dikes in Central Western Virginia," *Bull. Geol. Soc. Amer.*, XXIV (1913), 301–34, pls. 3, figs. 5, analyses.

Describes a series of dikes occurring in Rockbridge, Augusta, Rockingham, and Highland counties, Virginia. The rocks are diabase, granite-felsophyre, quartz-gabbro, nephelite-syenite, teschenite, and camptonite. All the rocks are analyzed and their positions in the C.I.P.W. system are determined.

WATSON, THOMAS L., and TABER, STEPHEN. "Geology of the Titanium and Apatite Deposits of Virginia." *Bull. III-A, Virginia Geol. Surv.*, 1913. Pp. 308, pls. 37, figs. 22, 7 pp. bibliography on titanium.

After a general discussion of the titanium minerals and a brief description (28 pp.) of the rutile deposits of the world, the geology of the ore deposits in the Amherst-Nelson region is given. The rocks are described in detail, and chemical analyses of some of the associated rocks—biotite-quartz-monzonite-gneiss, syenite, gabbro, nelsonite, and diabase—are given. In the first the plagioclase is oligoclase, Ab_2An_1; the second rock is really an andesinite, or andesine-anorthosite as used by the authors; the rock described as gabbro consists chiefly of andesine and hypersthene with ilmenite, apatite, orthoclase, quartz, biotite, etc.; the nelsonite is a dike-rock consisting essentially of ilmenite and apatite.

WHERRY, EDGAR T. "A Peculiar Oolite from Bethlehem, Pennsylvania, *Proc. U.S. National Mus.*, XLIX (1915), 153–56, pls. 2.

Describes an oolite in which the ooids show a "half-moon" effect, the upper portions being light and the lower dark. An explanation for this peculiar character is given.

WHERRY, EDGAR T., and GORDON, SAMUEL G. "An Arrangement of Minerals According to Their Occurrence," *Proc. Acad. Nat. Sci., Philadelphia*, 1915, 426–57.

Minerals are classified according to their occurrence in igneous rocks, pegmatites, hydrothermal deposits, fumerolic deposits, or sediments. Each of these main divisions is subdivided into various groups, and under each is given a list of the minerals which occur. It is a very useful list.

Wherry, Edgar T. "The Microspectroscope in Mineralogy." *Smithsonian Miss. Col.*, LXV (1915), No. 5. Pp. 16.

Descriptions of the spectra observed in the examination of about 200 minerals with the microspectroscope.

Wilkman, W. W. "Kaleviska bottenbildningar vid Mölönjärvi." *Bull. com. géol. Finlande,* No. 43, 1915. Pp. 36, figs. 11.

A geological description of the basal formations near Lake Mölönjärvi, in east Finland. Granite, conglomerate, quartzites, various schists and phyllites, and basic dikes are described.

Wright, Fred. Eugene. "An Electrical Goniometer Furnace for the Measurement of Crystal Angles and of Refractive Indices at High Temperatures." *Jour. Wash. Acad. Sci.,* III (1913), 396–401.

Describes a furnace for measuring the interfacial angles and refractive indices of crystals at temperatures up to 1225°.

Wright, Fred. Eugene. "Graphical Methods in Microscopical Petrography," *Amer. Jour. Sci.,* XXXVI (1913), 509–39, pls. 8, figs. 9.

The writer gives eight charts for the solution of the following equations: $\sin i = n \sin r$, $\sin^2 i = n^2 \sin^2 r$, $\cot A = B . \cot C$, $\sin A = \sin B . \sin C$,

$$\frac{\gamma^1-\alpha^1}{\gamma-\alpha}=\sin\theta_1 \sin\theta_2,\ \tan^2 V\alpha=\frac{\frac{1}{\beta^2}-\frac{1}{\gamma^2}}{\frac{1}{\alpha^2}-\frac{1}{\beta^2}},\ \tan V\alpha=\sqrt{\frac{\frac{1}{\beta^2}-\frac{1}{\gamma^2}}{\frac{1}{\alpha^2}-\frac{1}{\beta^2}}}.$$

Wright, Fred. Eugene. "The Change in the Crystal Angles of Quartz with Rise in Temperature," *Jour. Wash. Acad. Sci.,* III (1913), 485–94, figs. 2.

The polar angle ρ of the unit rhombohedron was found to decrease at an increasing rate until the temperature of 575° was reached. Here, with the inversion of α-quartz to β-quartz there is an abrupt decrease of 2′ in the angle, and the value remains constant thereafter to 1250°.

WRIGHT, FRED. EUGENE. "The Measurement of the Refractive Index of a Drop of Liquid," *Jour. Wash. Acad. Sci.*, IV (1914), 269–79, figs. 14.

Describes various methods for measuring the refractive index of liquids, five of them new methods for the petrographic microscope.

WRIGHT, FRED. EUGENE. "The Determination of the Relative Refringence of Mineral Grains under the Petrographic Microscope," *Jour. Wash. Acad. Sci.*, IV (1914), 389–92.

Describes a new diaphragm for observing relative refractive indices.

WRIGHT, FRED. EUGENE. "The Optical Character of the Faint Interference Figure Observed in High Power Objectives between Crossed Nicols," *Jour. Wash. Acad. Sci.*, IV (1914), 301–09.

Explains the positive character of the interference figure produced by the rotation of the vibration plane of the transmitted light.

WRIGHT, FRED. EUGENE. "A New Half-Shade Apparatus with Variable Sensibility," *Wash. Acad. Sci.*, IV (1914), 309–13.

Describes a device for varying the sensibility of a half-shade apparatus.

WRIGHT, FRED. EUGENE. "A Simple Method for the Accurate Measurement of Relative Strain in Glass," *Jour. Wash. Acad. Sci.*, IV (1914), 594–98.

Describes a wedge with which it is possible to measure path-differences of less than $1\mu\mu$.

WRIGHT, FRED. EUGENE. "Measurements of Refractive Indices on the Principal Optical Sections of Birefracting Minerals in Convergent Polarized Light," *Jour. Wash. Acad. Sci.*, IV (1914), 534–42.

Two refractive indices are measured by the immersion method, the third by measurements made on the rings in the interference figure.

WRIGHT, FRED. EUGENE. "The Accurate Measurement of the Refractive Indices of Minute Crystal Grains under the Petrographic Microscope," *Jour. Wash. Acad. Sci.*, V (1915), 101–7.

Considers the conditions necessary for the exact measurement of refractive indices of minute crystal particles by the immersion method.

WRIGHT, FRED. EUGENE. "A New Crystal-Grinding Goniometer," *Jour. Wash. Acad. Sci.*, V (1915), 35–41.

Describes the precision goniometer used in the Geophysical Laboratory, which is capable of grinding a plate to within 1′ of the required position.

WRIGHT, FRED. EUGENE. "Obsidian from Hrafntinnuhrygghur, Iceland. Its lithophysae and Surface Markings," *Bull. Geol. Soc. Amer.*, XXVI (1915), 255–86, figs. 12.

The writer discusses the formation of spherulitic, lithophysal, and pumiceous structures in the obsidians of Iceland, as well as certain markings produced by the etching effect of hot volcanic gases.

WRIGHT, FRED. EUGENE. "The Position of the Vibration Plane of the Polarizer in the Petrographic Microscope," *Jour. Wash. Acad. Sci.*, V (1915), 641–44.

The writer concludes that there is a slight practical advantage in having the plane of vibration parallel to the vertical cross-hair.

WRIGHT, FRED. EUGENE. "A Simple Device for the Graphical Solution of the Equation $A=B.C$," *Jour. Wash. Acad. Sci.*, VI (1916), 1–5.

Describes a device by means of which certain formulae may be solved by the use of a series of scales.

WRIGHT, FRED. EUGENE. "A Geological Protractor," *Jour. Wash. Acad. Sci.*, VI (1916), 5–7.

A device for solving various problems, such as the slope of any bed, in the field.

WÜLFING, E. A., and BECHT, K. "Über neue Turmalinanalysen," *Sitzb. Akad. Wiss. Heidelberg*, 1913. A–20. Pp. 10, analyses.

Wülfing, E. A. "Über Kristallwinkel bei verschiedenen Temperaturen," *Sitzb. Akad. Wiss. Heidelberg*, 1913. A–21. Pp. 5, figs. 2.

In the determination of the changes produced in crystal angles it is sometimes necessary, on account of the irregular natural faces, to grind artificial faces. The present paper deals with the question as to the most advantageous angle at which they should be cut, and the conclusion is reached that this is 45° with the base. If possible it is better to measure across the base from one pyramidal face to another, thus (101) to ($\bar{1}$01).

Wülfing, E. A., and Oppenheimer, L. "Neue Untersuchungen an Cordierit," *Sitzb. Akad. Wiss. Heidelberg*, 1914, A–10. Pp. 13, figs. 1.

New determinations on cordierite from eight localities.

Wülfing, E. A., and Hörner, F. "Die kristallographischen Konstanten des Stauroliths vom St. Gotthard," *Sitzb. Akad. Wiss. Heidelberg*, 1915, A–10. Pp. 11.

Gives new determinations of interfacial angles and axial ratios.

Wülfing, E. A. "Lassen sich die kristallographischen Fundamentalwinkel der Plagioklase mit der Zusammensetzung in gesetzmässige Beziehung bringen?" *Sitzb. Akad. Wiss. Heidelberg*, 1915, A–13. Pp. 24, figs. 6.

New determinations of crystallographic properties make it possible to say with certainty that these properties follow a definite law.

Ziegler, Victor. "The Minerals of the Black Hills." *Bull. 10, South Dakota School Mines*, 1914. Pp. 255, map 1, pls. 30, figs. 26, bibliography.

In this bulletin the writer describes briefly, for the benefit of the miner, prospector, and student, all the minerals known to occur in the Black Hills. There are included three very good tables for the megascopic determination of the minerals, as well as many full-page illustrations.

The book should be of great value to everyone working in the Black Hills region.